REMARKS

The Office action dated July 21, 2008, has been reviewed. Claims 1, 3-14 and 16-42 are currently pending in this application. Claims 4, 7-13, 17, 19-38, and 42 have been withdrawn. In response to the Office action the Applicants submit this Amendment and Response. The amendments to the claims contained herein contain no new matter.

Claim objections.

The Examiner objected to claims 4 and 5 because the word --substantially-- should be inserted before "spherical" to be consistent with claim 1. Claim 4 has been withdrawn from consideration by the Examiner in the Action dated July 21, 2008 and claim 5 has been amended as instructed by the Examiner. Accordingly, withdrawal of this objection is respectfully requested.

Rejections Under 35 U.S.C. § 102(b).

Section 102(b) Rejection of Claims 1, 3, 5, 14, 16, and 18 over Thompson.

The Examiner rejected claims 1, 3, 5, 14, 16, and 18 under 35 U.S.C. § 102(b) as being anticipated by U.S. Pat. No. 4,507,019, issued to Thompson (hereinafter "Thompson"). Reconsideration of this rejection is respectfully requested.

Independent claim 1, as amended, is directed to a pipe-bursting apparatus for use with a drill string. The apparatus comprises a frame, and at least one substantially spherical pipe-bursting member. The frame is connectable with the drill string and comprises a housing segment having a first end and a second end. The first end of the housing segment has a cross-sectional area less than a cross-sectional area of the second end. The first end is disposed toward the drill string relative to the second end. The at least one substantially spherical pipe-bursting member is supported by the frame and movable relative to the frame in response to movement of the drill string.

Independent claim 14, as amended, is directed to a horizontal directional drilling system. The system comprises a drive machine, a drill string, having a first end and a second end, and a pipe-bursting apparatus. The first end of the drill string is operatively connected to

the drive machine and the pipe-bursting apparatus is operatively connected to the second end of the drill string. The pipe-bursting apparatus comprises a frame operatively connected to the drill string and at least one substantially spherical pipe-bursting member. The frame comprises a housing segment having a first end and a second end. The first end of the housing segment has a cross-sectional area less than a cross-sectional area of the second end and wherein the first end is disposed toward the drill string relative to the second end. The at least one substantially spherical pipe-bursting member is supported by the frame and movable relative to the frame in response to movement of the drill string. Thus, both independent claims 1 and 14 require at least one substantially spherical pipe-bursting member supported by the frame and movable relative to the frame in response to movement of the drill string. Thompson does not teach these features of Applicants' invention.

The Thompson patent teaches a method and apparatus for the fracturing and replacement of *in situ* pipe without the need for excavation of a trench. The apparatus of Thompson is either pushed or pulled through the existing pipe to fracture the old pipe and expand an existing borehole. The tapered shape of the Thompson device expands the hole by pushing the old pipe fragments into the surrounding soil. The new product pipe may be installed in the borehole by towing the product pipe along behind the fracturing device. The device of Thompson comprises a plurality of hard boring buttons embedded in the surface of the conical section. The buttons are constructed of a hard material such as tungsten carbide and function to engage the inner surface of the pipe being replaced to score or bore the inner surface on the pipe. See Thompson at Col. 7:49-60. As shown in Figures 3 and 4 of Thompson the boring buttons are not substantially spherical and are not movable relative to the frame in response to movement of the drill string. Rather, the buttons of Thompson are dome shaped and have a flat surface embedded within the conical section. The buttons of Thompson are also not movable relative to the frame. Applicants' independent claims 1 and 14, as amended, require a substantially spherical pipe-bursting member supported by the frame and moveable relative to the frame during movement of the drill string. Thompson fails to disclose either of these features.

Therefore, Applicants' respectfully request withdrawal of the rejection of independent claims 1 and 14 over Thompson.

Claims 3 and 5 depend either directly or indirectly from independent claim 1 and include all of its features. Likewise, claims 16 and 18 depend either directly or indirectly from claim 14 and include all of its features. Because independent claims 1 and 14 have been shown to be allowable over Thompson claims 3, 5, 16, and 18 are likewise allowable and the Section 102(b) rejection of these claims should also be withdrawn.

Rejections Under 35 U.S.C. § 103(a).

Section 103(a) Rejection of Claims 39-41 over Thompson in view of Rasmussen et al.

The Examiner rejected claims 39-41 under 35 U.S.C. § 103(a) as being unpatentable over Thompson in view of U.S. Pat. No. 1,010,954, issued to Rasmussen et al. (hereinafter "Rasmussen"). Reconsideration of this rejection is respectfully requested.

Independent claim 39, as amended, is directed to a method for bursting pipe using a horizontal directional drilling system including a rotary drive machine, a drill string having a first end and a second end, and a pipe-bursting apparatus. The first end of the drill string is operatively connected to the rotary drive machine and the pipe-bursting apparatus is operatively connected to the second end of the drill string. The pipe-bursting apparatus comprises a frame. The frame comprises a housing connected to the second end of the drill string and a plurality of spherical pipe-bursting members supported longitudinally along the frame, and movable relative to the frame. The method comprises operating the plurality of spherical pipe-bursting members by pulling the drill string and the plurality of spherical pipe-bursting members toward the rotary drive machine. The combination of Thompson and Rasmussen do not teach the method of Applicants' claim 39.

As previously discussed, Thompson does disclose a method and apparatus used for fracturing in-ground pipe. However, as noted by the Examiner and as discussed above, Thompson does not teach or disclose a plurality of spherical pipe-bursting members supported

longitudinally along the frame and movable relative to the frame in response to movement of the drill string towards the rotary drive machine. Rasmussen does not supply these missing features of Applicants' independent claim 39.

Rasmussen teaches a swage device used to straighten in-ground pipe without bursting the pipe. As the swage is pushed into an oil well casing a plurality of ball bearings disposed about the circumference of the swage in rows at a right angle to the longitudinal axis of the swage roll and decrease friction between the pipe and the swage. Rasmussen does disclose an alternative embodiment wherein the ball bearings are mounted spirally on the peripheral surface of the swage. However, the purpose of the device taught in Rasmussen is straightening a section of pipe using the reduced friction provided by the ball bearings engaging the inner surface of the pipe as the swage is thrust or pushed into the pipe. Bursting of the pipe is an outcome which the Rasmussen device is designed to avoid. Thus, the neither the ball bearings nor the swage are used to burst pipe. Accordingly, one skilled in the art is unlikely to employ the teachings of Rasmussen in combination with Thompson when attempting to accomplish the goal of Applicants' claim 39. Because the combination of Thompson and Rasmussen fails to teach or disclose, either alone or in combination, all of the features of Applicants' claim 39, Applicants respectfully request withdrawal of the Section 103 rejection of claim 39.

Claims 40 and 41 depend either directly or indirectly from claim 39 and include all of its limitations. Therefore, claims 40 and 41 are likewise allowable over the combination of Thompson and Rasmussen and Applicants request withdrawal of the rejection of claims 40 and 41.

Should the Examiner have any questions or comments regarding this application, Applicants' attorney would welcome the opportunity to discuss the same with the Examiner. The amendments to the claims do not add new subject matter to the application. This is intended to be a complete response to the Office action dated July 21, 2008.

Respectfully submitted,

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